Migration and multi-dimensional poverty in Moldovan communities

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Abstract

This paper aims to understand the links between migration and poverty at the community level. Most of the research to date on the links between migration and poverty has been conducted at the micro level, while research related to migration and development more broadly usually focuses on the specific micro or the broader macro level. This paper adds to the existing literature by focusing specifically on the community level using data collected in the second half of 2011 in 180 Moldova communities. This paper examines four dimensions of poverty at the community level, namely: 1) infrastructure, 2) education, 3) livelihood and 4) health. We look at different rates of poverty by migration/remittance prevalence and country destination. We find that communities with higher rates of migration are significantly associated with a higher level of deprivation in infrastructure and the multi-dimensional index, while we find no significant results for remittances sent to the community. Community size and average income as well as region and proximity to the capital all show significant results of the different dimensions of well-being.

Keywords: Migration, Remittances, Development, Poverty, Moldova, Community development, Deprivation

JEL classification: Y80, Z13, Z18

Migration and multi-dimensional poverty in Moldovan communities

1. Introduction

This paper aims to understand the relation between migration and poverty or well-being at the community level. Most of the research to date on the relation between migration and poverty has been conducted at the micro level, while research related to migration and development more broadly usually focuses on the specific micro or the broader macro level. This paper examines four dimensions of poverty/well-being at the community level, namely: 1) infrastructure, 2) education, 3) livelihood and 4) health. We investigate different rates of poverty (or deprivation) by migration and remittance prevalence and country destination.

Moldova has seen a spike in emigration since 1999. In 2010, the stock of emigrants living abroad was estimated at 770,000, equalling 21.5 per cent of the population (Ratha, Mohapatra, & Silwal (2010). Migration has also become increasingly gender diversified. The main destinations for migrants are Russia and Italy, with men mainly going to Russia and women going to Europe. At least half the migrants who leave Moldova are women (Salah, 2008), often migrating to Europe to work in the service or care sector, while men work in the construction or agriculture sectors in Russia.

According to de Haas (2006), migration can contribute to social and economic development in the sending areas but this is a potential and not a given fact. We may find that migrants leave poorer areas in search of work and diversified income sources. At the same time, communities with more migrants may be less deprived either because of increased investment in these areas by migrants or because migrants from these communities are most able to move.

This paper adds to the existing literature by focusing specifically on the community level using data collected in the second half of 2011 in 180 Moldova communities. Survey

questionnaires were administered to 180 community leaders, usually from the administrative sector.

The next section of this paper examines the literature and previous findings on the link between migration and community development. The paper then goes on, in Section 3, to explain the methodology used and specifically the creation of the multi-dimensional poverty index. Section 4 presents the results of our analysis and Section 5 concludes.

2. Migration and Community Development

Community development can be defined in different ways as economic development, social development or as Sen's development as freedom (or capabilities approach) looking at multi-dimensional outcomes. This multi-dimensional approach is used in this paper and is explained in greater detail in section 3.

Most studies on the link between migration and community level development look at the individual, household or national level effects with some focus on the regional level. It is even more difficult to pinpoint studies that directly look at community development since interactions between households and communities are rarely considered (with the exception of Taylor et al. (1996); Taylor 2009, Taylor (2012), McKenzie & Gibson (2010)). It might be due to difficulties identifying the actual impacts of migration on community development and therefore a way of considering the effects could be looking at changes over time while comparing areas of high and low migration.

The link between migration and development can go in both directions. Development could lead to migration (as more people are able to finance migration), but migration could also lead to development through remittances, investment and increased knowledge and skills. According to de Haas (2006), positive outcomes require a positive development context. However, even in negative environments, migration may still provide the capacity to migrate which can lead to individual development. Migration can contribute to social and

economic development in sending areas but this is a potential and not a given fact and it is likely that major effects will not be seen for a long time.

Few authors highlight migration or remittance effects on communities. Some studies have found that remittances facilitated communities to finance public works projects such as parks, churches, schools, electrification, and sewers (Goldring, 1990, 2004; Massey et al., 1987; Reichert, 1981). Through ethnographic, survey and secondary data analyses in Guatemala, Taylor et al (1996) argue that two main barriers to effective promotion of development through migration are a lack of infrastructure and of credit markets. Taylor (2009) explains that *migration is transforming local economies in ways not reflected in estimates of the direct impacts of remittances* (p1171). Clemens (2007) finds migration as a symptom not cause of failing health systems. Through surveys with community leaders**,** McKenzie & Gibson (2010) find that the main benefits of migration and remittances to communities in Tonga and Vanuatu are job creation and monetary support to the church and housing improvement, while the main disadvantages are that less people do community work, not all migrants contribute, and there are negative influences from abroad (e.g. alcohol). McKenzie et al (2009) highlights that the context is important in explaining effects on communities.

3. Methodology

The "Capability Approach" developed by Amartya Sen shifted from uni-dimensional to multidimensional the notions of thinking about poverty measurement (Sen 1985, 1992). Multidimensional poverty measurement which came into international focus with the Capability Approach inspired the publication of the Human Development Index in the 1990 UNDP Human Development Report (UNDP 1990). This index enables a more holistic (however, not complete) measurement of human development. Multi-dimensional poverty measurement is now considered the state of the poverty measurement.

3.1 Multidimensional index

The methodology implemented in this analysis is based on the one proposed by Alkire & Foster (2011) and inspired by other studies of multidimensional poverty like Roelen & Gassmann's (2012) and Alkire & Santos's (2010). The methodology employs a three-step process using two forms of cutoffs, one at a dimension-specific level, and the other which identifies multidimensional poverty and which is called the "Poverty cutoff". "This 'dual cutoff' identification system gives clear priority to those suffering multiple deprivations and works well in situations with many dimensions" (Alkire and Foster, 2011, p. 477).

In the first step, each indicator is analysed separately. A community is well-off in a given indicator if the established well-being threshold set for a given indicator is met:

$$IWB_x = \frac{1}{n}\sum_{i=1}^{n} I_{ix}$$

where n indicates the number of communities and I_{ix} is a binary variable taking value 1 if community *i* has reached the threshold and 0 if the community has not with respect to indicator *x*. This means that for each indicator, those communities that meet the corresponding threshold (i.e. having a primary school, piped water or bus service) will be assigned a value of 1, and 0 otherwise.

The second step consists in establishing well-being rates for the different dimensions. These well-being rates classify those communities that accomplish an adequate level of well-being in the given dimension as not deprived, expressed as a share of all communities. All indicators have equal weights summing up to 1 within a dimension, except for the case of the infrastructure dimension. In this dimension two different weights are assigned to the indicators according to their level of importance, considering the country and communities

analysed. The choice of the cut-off for each dimension is normative and dependent on the specific indicators and dimension considered, as well as the specific context under consideration -in this case Moldova- (Alkire and Foster, 2011). For instance, while in the domain of education, a community needs to be well-off in all indicators in order to be considered non-poor (in this case, the community needs to have both a primary and a secondary school to be considered not deprived), in other dimensions like health and infrastructure, a community is considered not deprived if their well-being rates are above a certain threshold. With regard to the health dimension, being well-off in two out of three indicators (which are having a health centre in the community, good quality of health care and a pharmacy) is sufficient for a community to be considered not deprived. Regarding the infrastructure dimension, due to the high number of indicators (some of them more important than others) it is necessary to assign weights in a way that those communities which do not have a minimum of services or facilities available will be considered deprived. In this regard, indicators like access to piped water, security, a bus service or public lighting will be assigned a higher weight than other less-essential facilities, such as a post office, garbage collection or internet. Finally, the dimension of livelihood is composed of only one indicator, which is the unemployment rate in the community. Due to the high rate of unemployment in Moldova, the threshold has been set at 15 percent. The formula which summarises this part of the methodology can be expressed as follows:

$$DWB_d = \frac{1}{n}\sum_{t=1}^{n} D_{td}$$

$$D_{td} = 1 \; if \sum_{x=1}^{d} w_x I_{ix} \geq x$$

where I_{ix} are the indicators of dimension D for the community, w_x are the indicator weights, and x is the corresponding threshold chosen for the different dimensions. We have followed

two steps to identify those communities which are deprived in a given dimension. First, we generate a weighted indicator for each community by summing up all the indicators that belong to that dimension. Secondly, a dummy variable is generated for the dimension that takes a value of one if the community has a weighted indicator with a value higher than the defined threshold for the specific dimension. For the dimensions of education and infrastructure, the threshold was set at 70 percent as this value meets the requirements previously defined –that is, only communities that are well-off in both indicators within the dimension of education and that meet a minimum required level of services will be well-off. In the case of livelihood, the threshold of the dimension is the same as for the indicator (an unemployment rate of 15 percent). Finally, the threshold for health was set at 2/3 as communities need to be well-off in at least two of the three indicators included in this dimension.

Finally, the overall well-being index is established by aggregating well-being rates across dimensions. The multidimensional well-being index gives the percentage of the communities with aggregated well-beings higher than the pre-identified threshold. In other words, those communities not meeting the requirements can be considered as multi-dimensionally deprived. Formally:

$$CWB = \frac{1}{n}\sum_{i=1}^{n} W_i$$

$$W_i = 1 \; if \sum_{d=1}^{d} w_d D_{id} \geq 0.7$$

where n represents the number of communities, and W_i is a binary variable which takes a value of 1 if the aggregated and weighted domain well-beings, D_{id}, exceed the threshold of 0.7. Each dimension is weighted equally and all dimension weights, w_d, sum up to 1.

In this final step we follow the same procedure as with the well-being indices dimension. First, we aggregate well-being rates of all dimensions assigning equal weights to each dimension. Then we create a dummy variable which identifies as deprived all communities where overall aggregated well-being is below 70 per cent. The threshold of 70 percent is based on the MPI (Alkire & Santos, 2012), where a household is considered poor if "it is deprived in some combination of indicators whose weighted sum is 30 percent or more of the dimensions" (pp 7). This means that in order to be non-poor, a community needs to be well-off in 70 percent or more of the dimensions.

In addition, and in order to check for robustness by comparing the different results, the continuous version of the multidimensional index has been used for the analysis. This means that once a value of 0 or 1 has been assigned for each dimension, the well-being rates of all dimensions are aggregated, resulting in the continuous multidimensional index. The higher the number of dimensions in which the community is well-off, the higher the multidimensional index will be.

3.2 Regression analysis

Probit regressions are used to estimate the predicted probabilities of a community being well-off in the multidimensional indicator. Due to the fact that these probabilities are unknown, they have to be estimated by using a binary probit regression, where the dependent variable is the dummy which takes the value of 1 if the community is well-off in the multidimensional indicator and 0 otherwise. Denoting the vector of regression parameters as β_i, a binary probit regression shows the conditional probability of being well-off in the following way:

$$P\ (D=1|X_i) = \phi\beta_i x_i$$

Where the dependent variable D is the dummy indicating well-being, X_i are the regressors, and ϕ is the cumulative standard normal distribution function. The main independent variable

is the migration indicator. This variable indicates high (value of 1) or low (value of 0) migration rates. Alternatively, we use the continuous variable which indicates migration rates in each community. In order to get the net effect of migration prevalence on the overall community well-being, a set of control variables are included in the regression, such as size of the community, region, main destination countries of migrants, education, and distance to the capital and to the main raion administration (municipality). Communities are classified according to their location or region: north, west, east or in the centre of the country. Destination countries are divided into 3 groups: Russia, Italy and other, as the majority of the population leaving the country migrate to these first two countries. All of these controls may also affect the overall level and quality of services, infrastructures, and employment in the community, and their omission would cause possible biases in the regressions. In addition, OLS regressions were used to assess the effect of migration on the continuous indicator of well-being. The independent variables used were the same as stated previously.

4. Results

We use four dimensions of well-being in each of the communities surveyed. They include: infrastructure, livelihood, education and health. A commmunity is considered not deprived if there is bus services, public lighting, piped water, sewage drains, garbage collection are available, if there are no water interuptions or shut off, there are no blackouts of electricity, internet is availabile, there is a post office as well as a police service. Livelihood is measured as not deprived if the community has an unemployment rate of 15 per cent or lower. Health is measured by whether there is a health center and a pharmacy available and if the quality of health care is rated as medium or high. Education is measured by having a primary and a secondary school. In Table 1 we see that communities as a whole are most deprived in livelihood and infrastructure, which brings the overall rate of well-off communities to less

than 50 per cent (see previous section for explaination of the calculations). However, communities are much better off in health and schooling.

Table 1: Well-being indictor rates

Dimension	Formulation	% well-off
Infrastructures	Is there a bus service in the community?	66.7
	Public lighting available	49.36
	Piped water available	61.54
	Disposal of sewage	23.23
	Garbage collection	30.13
	Water interruption/shut offs	87.82
	Are there blackouts of electricity?	76.92
	Internet available	88.46
	Is there a post office	89.1
	Security available	77.56
	Total	**49.69**
Livelihood	Is the unemployment rate lower than 15%?	6.88
	Total	**6.88**
Health	Is there a health centre or hospital	78.21
	Is there a health centre or hospital	63.46
	Is the quality of health care medium or high	83.97
	Total	**79.75**
Schooling	Does the community have primary school	87.82
	Does the community have secondary school	81.41
	Total	**83.44**
Multidimensional Index		**46.62**

Source: author calculations

Next we indicate well-being rates by different groups. Table 2 shows the different well-being rates by high or low migration prevalence communities as well as rates based on primary destination for migration of the community. High and low migration communities are based

on the median migration rate in all communities. In the preliminary descriptive results, we find that there are significant differences in high and low migration communities with regard to schooling and the total index. High migration communities are better off in schooling and low migration areas are better off in terms of the overall index. We only find significant differences with regard to the main destination countries for a community in infrastructure. Those communities that have migration to Russia are significantly worse off in terms of infrastructure.

Table 2: Multi-dimensional well-being by migration prevalence and destination

	% well-off			% well-off			
	High migration	Low migration	P-value	Russia	Italy	Other	P-value
Health	82.05	77.65	0.49	76.85	85.11	87.5	0.4
Livelihood	5.13	8.54	0.4	5.71	8.51	12.5	0.65
Infrastructure	44.16	54.76	0.2	43.9	59.6	71.4	0.1*
Schooling	88.46	78.82	0.098*	80.6	89.3	87.5	0.4
Overall index	38.96	53.09	0.075*	41.35	55.32	57.14	0.2

***p-value<1% **p-value<5% *p-value<10%

If we look at well-being by high and low remittance receiving areas as well as income non-/poor areas, a slightly different picture begins to emerge (Table 3). We do find significant differences in high/low remittance areas with regard to health, infrastructure and schooling. Low remittance receiving communities are worse off in health, infrastructure and schooling. We find the same results in income for poor communities. This may suggest that only communities that receive remittances (not only have migration) are those that can benefit most from migration.

Table 3: Multi-dimensional well-being by remittance prevalence and income poor level

	By remittances rate (high/low)	**Poverty levels poor/non-poor**
	% well-off	% well-off

	Low av. Remittances	High av. Remittances	P-value	Non-poor	Poor	P-value
Health	73.2	86.4	0.035**	85.4	70	0.02**
Livelihood	7.6	6.2	0.7	8.9	3.4	0.2
Infrastructure	43.2	56.3	0.09*	56.9	37.3	0.02**
Schooling	73.2	93.8	0.00***	87.4	76.7	0.07*
Overall index	41.03	51.25	0.2	51	37.9	0.12

***p-value<1%, **p-value<5%, *p-value<10%

Next we examine the correlations between multidimensional well-being and migration/remittances in communities in two different ways. First, we use the different dimensions as 0 or 1 (not deprived/deprived or well-off/not well-off) for each of the four dimensions and then the multi-dimensional index. This gives a more straightforward picture of deprivation in the community. Next, we use each dimension as a continuous variable so that we can see differences in being more deprived or less deprived (better-off).

Table 4 presents the results of the predicted probability estimates. We see that higher rates of migration are significantly associated with more deprivation in infrastructure and the multi-dimensional index, while we find no significant results for remittances sent to the community. Size of the community and average income of the community as well as region and proximity to the capital all show significant results of the different dimensions of well-being. Larger communities are significantly associated with less deprivation in infrastructure, schooling and health as well as the multi-dimensional index. Being closer to the capital is also significantly associated with better schooling, health and the multi-dimensional index. Higher average income of communities is also significantly associated with better livelihoods and health.

In addition, OLS regressions were used to assess the effect of migration on the continuous indicator of well-being (Table 5). We find that the rate of migration is negatively associated with infrastructure and the multi-dimensional index and positively associated with

livelihood. This means that higher migration is correlated to more deprivation in infrastructure and multi-dimensional well-being. At the same time, higher migration is associated with better livelihood outcomes. This can be explained by the fact that livelihood is measured by unemployment rate and it can be assumed that migration takes pressure off unemployment rates. We do not find significant correlations with regard to remittances. Again, community size, average income and location of community is significantly associated with the different dimension and overall well-being index.

Table 4: Probit regression results

	Dependent variable (migration as independent)					Dependent variable (remittances as independent)				
	Multidimensional Index (dummy)	Infrastructure	Schooling	Livelihood	Health	Multidimensional Index (dummy)	Infrastructure	Schooling	Livelihood	Health
Migration rate/remittances high/low	-2.1**	-1.8**	-2.89	-2.4	-1.3	0.15	0.15	0.82	-0.08	-0.08
Distance to the closest municipality (km)	0.01	0.0008	-0.03	-0.040	0.02	0.01	0.00003	-0.02	-0.050	0.02
Distance to the capital (km)	0.006*	0.006	0.01*	0.010	0.005	0.00	0.004	0.01	0.011	0.004
Size of the community	0.0002***	0.0002***	0.002***	-0.00005	0.0006***	0.0002***	0.0001**	0.002***	-0.00005	0.0005***
Education: *reference category no education*										
Primary education	4.10	3.45	4.03	4.77	3.8	4.20	3.6	3.80	5.10	3.9
Secondary education	4.60	4.2	4.78	Omitted	4.1	4.50	4.2	4.80	Omitted	4.1
Upper secondary education	4.30	3.99	4.23	2.95	4.3	4.30	3.9	4.30	2.90	4.3
Tertiary education	5.20	4.6	Omitted	2.33	4.3	5.40	4.8	Omitted	2.40	4.5
Main destination country: *reference category Italy*										
Russia	-0.25	-0.26	-0.09	-0.05	-0.08	-0.20	-0.23	-0.17	0.03	-0.08
Other countries	0.04	0.43	-0.09	0.60	-0.37	-0.01	0.37	-0.64	0.50	-0.26
Region: *reference category South*										
Chisinau	0.44	Omitted	-4.30	2.02	Omitted	0.92	Omitted	-3.60	2.8	Omitted
Balti	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
North	-0.86*	-0.87**	-1.55*	-0.20	-0.37	-0.44	-0.5	-1.2	0.12	-0.17
Centre	-0.07	0.06	-0.26	0.71	0.01	0.05	0.17	-0.2	1.24	0.05
Average per capita income	0.0001	0.0001*	0.00002	0.0003***	0.0002*	0.0000	0.00006	-0.00007	0.0003***	0.0002**
Average age of the household head	0.01	-0.008	-0.04	-0.03	-0.03	0.01	0.0007	-0.02	-0.03	-0.02
Constant	-0.02	-4.8	-3.50	-4.70	-4.6	-6.50	-5.3	-4.60	-5.30	-4.9
Pseudo Rsquared	0.31	0.26	0.58	0.35	0.37	0.28	0.24	0.60	0.33	0.37

***p-value<1% **p-value<5% *p-value<10%

Table 5: OLS regression results

	Independent variable (migration as independent)					Independent variable (remittances as independent)				
	Multidimensional Index (continuous)	Infrastructure	Schooling	Livelihood	Health	Multidimensional Index (continuous)	Infrastructure	Schooling	Livelihood	Health
Migration rate/remittances high/low	-0.23*	-0.19*	-0.01	0.29***	-0.11	0.03	0.015	0.12**	0.03	0.03
Distance to the closest municipality(km)	0.00	-0.001	-0.001	0.003**	-0.002	0.00	-0.00005	-0.001	0.003***	-0.002
Distance to the capital (km)	0.001*	0.00004	0.0004	-0.0005	0.0006	0.0009*	-0.00008	0.0002	-0.0004	0.0005
Size of the community	0.0007*	0.000***	0.00000	0.000*	0.000	0.000***	0.0000***	0.00000	0.0000*	0.000
Education: *reference category no education*										
Primary education	0.31	-0.15	0.31	-0.09	0.23	0.31	-0.14	0.31	-0.10	0.24
Secondary education	0.38*	-0.01	0.61*	-0.04	0.37	0.36	-0.15	0.6**	-0.03	0.36
Upper secondary education	0.42*	0.01	0.69**	-0.12	0.45	0.40	0.00	0.7**	-0.11	0.45
Tertiary education	0.45*	0.11	0.76**	-0.04	0.43	0.46	0.13	0.8**	-0.05	0.45
Main destination country: *reference category Italy*										
Russia	-0.03	-0.08*	-0.05	0.04	-0.01	-0.04	-0.06*	-0.06	0.04	-0.01
Other countries	0.09	-0.06**	-0.02	0.04	0.14	0.07	0.13*	-0.05	0.04	0.13
Region: *reference category South*										
Chisinau	0.150	0.02	-0.19	-0.09	0.16	0.2*	0.06	-0.15	-0.12	0.20
Balti	-0.9**	-1.30	-0.03	-0.09	0.12	-1.12**	-1.4***	-0.06	-0.12	0.12
North	-0.1**	-0.08***	-0.08	-0.02	-0.08	-0.08	-0.05	-0.04	-0.05	-0.06
Centre	0.030	-0.03	-0.01	0.01	0.02	0.040	-0.05	-0.02	-0.01	0.02
Average per capita income	0.00004***	0.000***	0.00002	-0.00***	0.000***	0.00003***	0.00002**	0.0000	-0.00***	0.000**
Average age of the household head	-0.003	-0.002	-0.01	0.001	0.001	-0.002	-0.001	-0.01	0.001	0.002
Constant	0.05	0.78***	0.55	0.67**	0.13	-0.03	0.7	0.44	0.72	0.06
Pseudo Rsquared	0.21	0.17	0.28	0.32	0.28	0.30	0.4	0.28	0.29	0.09

***p-value<1% **p-value<5% *p-value<10%

5. Conclusion

This paper has investigated the link between migration and poverty at the community level. As most of the research to date on the relation between migration and poverty has been conducted at the micro or macro levels, this paper adds to the existing literature by focusing specifically on the community level. We find a varied picture in the link between migration and community level development.

Preliminary results indicate that communities that receive remittances (not only have migration) are those that can benefit most from migration. However, when continuing with our analysis we see that higher rates of migration are significantly associated with more deprivation in infrastructure and the multi-dimensional index and positively associated with livelihood, while we find no significant results for remittances sent to the community. Community size and average income as well as region and proximity to the capital all show significant results in the different dimensions of well-being. Larger communities are significantly associated with less deprivation in infrastructure, schooling and health as well as the multi-dimensional index. Being closer to the capital is also significantly associated with better schooling, health and the multi-dimensional index. Higher average income of communities is also significantly associated with better livelihood and health. We do not find significant correlations with regard to remittances. Again, community size, average income and location are significantly associated with the different dimension and overall well-being index.

6. References

Alkire, S., Santos, M.E. (2010), Acute Multidimensional Poverty: A New Index for Developing Countries. *Oxford Poverty and Human Development Initiative Working Paper* No. 38. Oxford Department of International Development, University of Oxford: United Kingdom.

Alkire, S. & J. Foster (2011), Counting and Multidimensional Poverty Measurement. *Journal of Public Economics* 95: 476-497.

de Haas, H. (2006). Migration, remittances and regional development in Southern Morocco. *Geoforum*, *37*(4), 565–580. doi:10.1016/j.geoforum.2005.11.007

Goldring, L. (1990). *Development and Migration: A Comparative Analysis of Two Mexican Migrant Circuits*. Washington, D.C.: Commission for the Study of International Migration and Cooperative Economic Development.

Goldring, L. (2004). Family and Collective Remittances to Mexico: A Multi-dimensional Typology. *Development and Change*, *35*(4), 799–840.

Massey, D. S., Alarcón, R., Durand, J., González, H. (1987). *Return to Aztlan: The Social Process of International Migration from Western Mexico*. Berkeley and Los Angeles: University of California Press.

McKenzie, D., Gibson, J. (2010), The development impact of a best practice seasonal worker policy. *Impact Evaluation Series*, (48). Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1718246

Halahingano, R., Gibson, J., McKenzie, D., Garcia Martinez, P. (2009) How do Pacific island households and communities cope with seasonally absent members? *Pacific Economic Bulletin,* 24 (3).

Ratha, D., Mohapatra, S., Silwal, A. (2010), *Migration and Remittances Factbook 2011*. World Bank.

Roelen, K., Gassmann, F. (2012), *Child Well-Being in Kazakhstan*, UNICEF Kazakhstan, Astana.

Reichert, J. S. (1981). The Migrant Syndrome: Seasonal U.S. Wage Labor and Rural Development in Central Mexico. *Human Organization* 40:56-66.

Salah, M.A. (2008), The Impacts of Migration on Children in Moldova. *United Nations Children's Fund Working Paper*. United Nations Children's Fund, Division of Policy and Practise: New York.

Sen, A. (1985), *Commodities and Capabilities*. Oxford: Oxford University Press.

Sen, A. (1992), *Inequality Reexamined*. Cambridge, MA: Harvard University Press.

Taylor, J.E., Moran-Taylor, M. J., & Rodman Ruiz, D. (2006), Land, ethnic, and gender change: Transnational migration and its effects on Guatemalan lives and landscapes. *Geoforum, 37*(1), 41–61. doi:10.1016/j.geoforum.2004.12.002

Taylor, J. E., Dyer, G. A. (2009), Migration and the Sending Economy: A Disaggregated Rural Economy-Wide Analysis. *Journal of Development Studies, 45*(6), 966–989. doi:10.1080/00220380802265553

UNDP (1990), *Human Development Report 1990 - Concept and Measurement of Human Development*, New York: United Nations.

Annex

Description of variables

Variable	Mean	SD	Minimum	Maximum
Multidimensional index (dummy)	0.46	0.5	0	1
Multidimensional index (continuous)	0.56	0.25	0	1
Infrastructure (dummy)	0.5	0.5	0	1
Infrastructure (continuous)	0.74	0.21	0.13	1.06
Health(dummy)	0.8	0.4	0	1
Health (continuous)	0.77	0.3	0	1
Livelihood (dummy)	0.07	0.25	0	1
Livelihood (continuous)	0.43	0.22	0	1
Schooling (dummy)	0.83	0.37	0	1
Schooling (continuous)	0.87	0.3	0	1
Migration rate	0.19	0.16	0	1
Migration (dummy high/low migration)	0.48	0.5	0	1
Distance to the closest municipality (km)	17.2	12.4	0	82
Distance to the capital (km)	113	67	0	263
Size of the community	9748	53298	96	664700
Education				
No education	0.006	0.08	0	1
Primary education	0.04	0.19	0	1
Secondary education	0.31	0.47	0	1
Upper secondary education	0.56	0.5	0	1
Tertiary education	0.08	0.27	0	1
Destination country				
Italy	0.29	0.45	0	1
Russia	0.66	0.47	0	1
Other countries	0.29	0.45	0	1
Region	0.05	0.22		
Chisinau	0.04	0.2	0	1
Balti	0.006	0.08	0	1
North	0.38	0.49	0	1
Centre	0.35	0.48	0	1
South	0.22	0.42	0	1
Average per capita income (in US $)	6238	2584	1120	18383
Average age of the household head	57	6.2	41	91
Remittances (high/low)	0.5	0.5	0	1
Income poverty (poor/non-poor)	0.37	0.48	0	1

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